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CONSIDERATIONS

ON THE

NATURE, QUALITY, AND DISTINCTIONS,

OF

COAL AND CULM,

WITH

INQUIRIES, PHILOSOPHICAL and POLITICAL,

INTO

The present state of the LAWS, and the questions now in
agitation relative to the Taxes upon these commodities.

Contained in a letter from

DOCTOR JAMES HUTTON,

PHYSICIAN in EDINBURGH:

TO

A FRIEND.

EDINBURGH:

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CONSIDERATIONS

ON THE

NATURE, QUALITY, AND DISTRIBUTION

OF

COAL AND CUM

WITH

EXPLANATIONS, STATISTICS, AND DOCUMENTS



The present state of the subject, and the position now in
relation to the facts upon which it is based.

Compiled by

DOCTOR JAMES HUTTON

FRANCIS & TAYLOR

TO

A. F. R. N. D.

EDINBURGH

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CONSIDERATIONS

O N

C O A L A N D C U L M.

THE Legislature of Great Britain has thought proper to subject coal and culm, transported coast-ways, to certain duties, which are very different in these two commodities ; and there being in the law no description of culm, a difficulty has occurred in some places of the kingdom how this commodity should be distinguished from coal which pays a higher duty. It is with a view to facilitate the determination of this question, what is coal and what is culm? that the following observations on this subject are offered to the consideration of those that are concerned.

By coal is understood that fossile fewel which is so commonly employed for serving in general all the conveniences and arts of life, where fire is required ; there is however a species of this fossile fewel which is denominated culm, and which must necessarily be a different thing from coal, seeing that the law subjects these to very different duties ; and now it may be inquired what it is that constitutes this difference in the commodity which should

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be in justice also found to have some conformity with the difference in the duty.

IT cannot be in the nature of the fossile substance that the distinction of coal and culm consists; for, in many places of the kingdom, the same seam, stratum, or mine, produces what is esteemed either coal or culm, according as it is in large pieces, or broken small; therefore so far as a judgment should be formed in this way, the distinction of coal and culm would appear to consist in nothing but great and small.

ON the other hand, it cannot be in the size alone, that culm differs from coal, because the smallest dust of a certain species of coal always pays the duty proper to coal; nor is there any question made with regard to this species, which, whether great or small, pays equally the same duty; and is always considered as perfect coal, and, independent of its size, may be esteemed of the very best quality, or give the highest price.

IT is therefore evident, that something else besides, either simply the nature of the substance, or the size of the commodity alone, must be required in order to distinguish culm from coal; and it will appear reasonable to look for this in the purposes to which those several commodities may be strictly applicable; for, although this difference of the purposes to which the commodity is appli-

cable depends truly on the nature of the substances in question, yet as this different nature of the mineral substance is best to be learned from observations that may be made in the actual application of the commodity to some of those purposes; so these may be now examined, with a view to find a mark, by which a determination with regard to the mineral commodity in general may be made, and that particular species, which is properly denominated culm, as being of inferior value, may be always with sufficient certainty distinguished from coal.

It is to be observed, that every mineral substance of the coal kind, if in pieces of sufficient size, are on all hands acknowledged to be that which in the sense of the law is esteemed coal; consequently the present question is circumscribed to the small of coal, which is now to be considered as of two different species, coal and culm; it is required to know in what manner the one of these is always to be distinguished from the other, and this discrimination is proposed to be taken in the manner of their burning, or purposes to which these several commodities are properly applicable.

THERE are two modes of burning applicable to the commodities in question, and two different purposes in life that are served by these two different methods of burning fuel. The first of these is the burning the fuel in a

grate, for the ordinary purposes of warming a house and the use of the kitchen; the second is the burning of that fuel in furnaces and kilns for various arts or manufactures.

THERE is no mineral fuel but what may, by a proper construction of the furnace or application of the bellows, be made to burn and serve the various purposes of the arts or manufactures, although with various success; according, First, to the quantities of heat which the several fuels are capable of producing; and, Secondly, to the purity of those fuels, from certain substances which mineral coal naturally or generally contains, and by which it is rendered less proper for certain purposes.

As therefore the small coal of every species may be applied, only with greater or lesser advantage, in burning in furnaces, or by help of bellows; so here, in this general use of fuel, no character can be formed of the two different species of small coal, nor any fixed distinction made betwixt coal and culm; they being all equally applicable, strictly speaking, in some degree, and the degrees in which they are more or less useful for the various purpose of the furnace, kiln, and forge, being altogether indefinite.

THUS we are necessarily led to consider the other purpose for which fuel is required, and the other method of burning usually ap-

plied to the commodities in question, coal and culm : If it shall be found that only one of those two commodities can be subservient to this purpose; that is to say, If a general distinction shall be observed with regard to small coal, as being either fit or unfit for burning in a grate, so as to serve the conveniences and luxuries of life; herein will be formed a proper character of what may be termed coal and culm, and thus there will be found a sure and most practicable method of determining the rank in which is to be held every small coal that may be presented, as claiming the privilege of the law.

IN fact, there is such a distinction in small coal, most obvious in this method of burning or general purpose of fuel, as there is a kind that will not burn in this manner; or rather, to speak more properly, there is only one species of coal, the small of which will burn in this manner, so as to answer the domestic and æconomical purposes of fuel; consequently there is only a particular species of the mineral substance, the small of which may in this sense be denominated coal.

IN this manner the character of culm, as an inferior species of coal, is perfectly ascertained; and thus the terms coal and culm, used in the law, may be explained consistently with the general principles of taxation and wisdom of the Legislature; for here the law most prudently gives no particular descrip-

tion of that inferior species of fuel which is to be relieved of that heavy duty ; but in the way of example, has named a well known species of small coal (probably at that time the only one transported,) which, in its natural state, is not applicable to the common purposes of coal.

To have given a particular description of what was to be held as culm would not probably have answered a good end ; for, if strictly founded in reason and justice, it might still have admitted of misinterpretation, and if conceived with the least inaccuracy, it would naturally be productive of injustice and confusion. To describe with accuracy a particular species of coal, is not the province of a lawyer but a naturalist ; and a distinction founded in a purpose of domestic œconomy, would not perhaps be considered by a naturalist as a proper subject for discrimination ; but the law being founded on the principles of equity and sound policy, without further description reason may conduct in execution to its proper sense.

THE case has been thus stated in a narration of simple facts, which will bear the strictest examination ; and, from whence, evident conclusions necessarily flow. Every kind of theory or science, by which those facts may be explained, has been purposely avoided, as not necessarily belonging to the case, which is a matter of fact ; but those who incline to

understand the reasons of things, and how it comes to pass that there should be just two species of small coal, the one of which may be used as perfect coal, the other not, consequently the one afford to pay a duty upon transportation, which the other cannot; must study so far of the natural history of coal and fire, as may explain those facts; and in order to guide such in this investigation, the following view of the subject is given.

COAL, as a term in natural history, is a general name, or denominates the genus; and the several species, comprehended in that class of minerals, are to be distinguished by their particular properties; for example, the species may be discriminated by certain appearances in burning, such as giving much flame or giving little flame; emitting much smoak, or burning without any discernible smoak; and in leaving ashes of this or that colour, or the specific distinction may take its rise from the appearance of the coal, without burning, and its aptitude for certain mechanical purposes, such as coal capable of receiving a polish fit for the turner; breaking with plain surfaces, into certain figures, or breaking irregularly with uneven surfaces, &c.

No property or appearance whatever of coal, can form the character of culm, so as to distinguish this commodity, as a species of coal; for, it is neither the size of the parts independent of the substance, nor the nature

of the substance independent of the size, that constitutes the species of fuel called culm; but it is necessary to attend to both the one and the other of these two perfectly different considerations, when the character of culm is to be determined.

IT will therefore appear, that culm, as a term of distinction, cannot properly find place in natural history; culm is a term that only occurs in certain uses of coal, or in what may be called domestic œconomy, consequently is a commercial distinction belonging to certain commodities, and cannot be viewed in any other light.

BUT tho' the term culm is not to be admitted into natural history, as properly discriminating a species; this distinction, however, depends upon a certain property of the mineral substance, which naturally forms an eminent difference in this commodity, considered as a fuel; and also leads to a general division of the genus coal, considered as a class of bodies, in which there are precisely two kinds; which division will equally respect the natural history of the mineral substance coal, and the domestic use of that commodity.

THE division of coal here proposed, is to be made from evident properties of this mineral substance, in relation to heat; a condition, which, as it is always necessarily present in the use of the commodity, so this will

form the most proper mode of trial that can be devised.

COAL, like every other body exposed to heat, must necessarily be either fusible or infusible; but it is neither every degree of fusion that is here inquired after, nor every degree of heat in which the subject is to be tried; it is the heat of ignition, which fire cannot be without, and it is such a degree of fusibility as shall be palpable in its effects, so that neither skill nor accuracy may be required in the observer.

COAL, in relation to heat, being considered as of two kinds, it is to be observed, that the one of these has the property of becoming in some degree fluid, or soft, when fire is applied to it; so that in this state, two contiguous pieces of coal will incorporate, and be joined together, like two pieces of sealing wax; the other kind of coal either has not this property at all, or it has it only in such a small degree, as not to be perceptible and useful.

HENCE the distinction of coal into fusible and infusible, fat coal, and lean or stone-coal; coal that cakes or folders, and coal that does not; being all different terms expressing the same relative properties, and forming the same distinction in things.

THIS general division, therefore, of mine-

ral fewel into fat and lean coal, is founded upon a natural property of the substance, independent of the necessary deceitfulness of appearance, the natural inaccuracy of observers, or the whimsical accident of names.

THE distinction of culm as a commodity arises from the natural properties of the lean or stone-coal, combined with the accidental form or state in which it is examined.

FAT coal in every form or state still remains coal, and cannot be made culm; on the other hand, lean or stone-coal is, in the oeconomic and commercial sense, only coal whilst it remains in a certain form, or of a certain size; and, when broken to a certain smallness, it ceases to be coal, being no longer applicable to the purposes thereof, but becomes culm.

PEOPLE used to the burning of this stone-coal, learn from experience this distinction; which necessarily arises from the different state of the commodity, whatever name they may annex to it, thus changed; and, without perhaps knowing the principles upon which it depends, they are very sensible of the great difference there is in the value of lean coal, when it happens to be broken small, from what it was when whole, or of a larger size.

THE loss sustained by the reduction of this

lean or stone-coal to culm, in peoples houses who lay in a store, amounts, however paradoxical may seem to be the expression, to more than the whole value; for, being no longer of any use, it is considered as so much rubbish in the coal-yard, which, at some expence, must be removed.

FEW people have been used to the burning of those different kinds of coal, or have sufficiently attended to those operations, so as to form a proper idea of, or give full credit to, all the facts that have been stated: it may therefore be proper to give the principles upon which the loss of coal, by its becoming culm, depends.

To make pit-coal burn for the usual purposes of life, there are required considerable spaces amongst the coals, passing quite thro' from below upwards, for the free circulation of air. When coal, that is broken small, is thrown upon a fire, it necessarily arranges itself so closely, that there is not sufficient space or passage left for this proper circulation of air: but if it is fat coal, this defect is easily remedied; for, upon receiving the heat, this coal cements itself together, and thus forms a solid mass, of one that was in a kind of fluid state, like that of sand; and now, by the use of the poker, which is absolutely necessary for the burning of this kind of coal, the mass is broken, and proper spaces are formed, for the circulation of the air.

IT must be evident, that this resource of poking cannot avail, if the small coal thrown upon the fire is of the lean kind; on the contrary, the mass of small coal not consolidating by the heat, upon the least motion this culm runs into the vacant spaces of the fire; and by filling up those spaces necessary for the circulation of air, instead of feeding the fire, it may extinguish it.

HENCE appears the essential difference that naturally exists betwixt coal and culm; not altogether arising from the size, or necessarily implying a difference in the substance or matter of those commodities, but arising properly from the mechanical form, or state of the mass, of all coal that is not of the fat and folding kind; for this stone-coal, of whatever species it may be, and these are various, cannot be reduced by fracture or crumbling to a certain smallness, without necessarily losing thereby that intrinsic value which it had when whole, of being an useful fuel; whereas the fusible species of coal cannot, by fracture, or any degree of bruising, be reduced to a useless state like the other, or acquire the nature of culm, which, in the state in which it is bought or comes to market, cannot serve to make a fire for the use of the kitchen, or answer the domestic purposes of wood, the more natural fuel.

HENCE there is an easy method of trying any commodity presented for transportation,

and claiming the privilege of the law in favour of culm; for this commodity being tried in the usual way of burning coal, if it shall be found to be a proper fuel, as serving the ordinary purposes of fire, then such commodity is to be esteemed coal, and has no pretension to the character of culm; but if, on the contrary, it will not burn in that manner, or falls short of answering the purposes for which, as coal, it must be necessarily employed, then this commodity which is not coal, in the commercial or political sense of the word, must be culm, as there is no other species of substance, or denomination of commodity, in which it can be ranked.

THE trouble attending this mode of trial will appear to be as inconsiderable as the method is natural and easy; for it is only required, that the coal of every mine that is transported should be tried once, in order to ascertain its nature, which then may be kept on record, as a coal which either affords culm, or does not produce this commodity; and nothing further will be required in the officers of the port, but to observe if the coal, belonging to a mine which is known to produce culm, be in the state of great coal, or that of small, which then is culm.

FOR the further illucidation of the present subject of coal and culm, considered as commercial commodities, it may be observed, that there is a distinction to be made in culm,

as consisting of two kinds; which, in respect of domestic œconomy, are essentially different; as the one by art may be rendered fit for the purposes of fuel, and be made to answer the conveniences and the luxuries of life in the highest perfection; whilst the other is, from its nature, necessarily disqualified from this valuable mode of application.

To understand this, it will be necessary to consider stone-coal or lean-coal as of two different species, each of which having the properties or character essential to the kind, are nevertheless to be discriminated, as possessing qualities by which each of these is perfectly distinguished from the other; and the one may be called house-culm, from the domestic purposes to which it may be applicable; the other lime or brick-culm as the burning of these is the purpose to which it is peculiarly adapted, although in this respect it is in no ways better than the other.

THE house-culm is the produce of that species of coal which burns without smoke, and it is prepared for the use of the grate, by being made into a paste with a sufficient quantity of clay, and thus formed into balls, which when dry burn in a grate with all the lustre and heat of a proper fire, and with more stability or duration than many coals.

THE other species of culm, which may be employed for burning lime or brick, in which

operation, by the construction of the kiln or furnace, this fewelis made to burn with sufficient vigour for that purpose, is altogether useless as fewel in a family, at least this is certain, that it is daily thrown out of the house as perfect rubbish, and that, tho' equally combustible in its nature with the coal; of which it is made by crumbling down, it is incapable of being rendered useful by the mixture of clay, as is the case with the other species of culm; and the reason of this may be now explained.

THE vigorous burning of culm in a grate by means of clay, is effected by retaining the combustible substance in such a consistent form as a free passage of air may be permitted up thro' the mass of fire, or lumps of burning matter; and this end is brought about by the clay retaining the culm in the form to which it is artificially reduced by that manufacture, which thus restores to it the quality of coal; but it is only one particular species of coal, the culm of which admits of this permanent state, so necessary to its burning in this manner and this quality, by which the small fragments of coal are thus preserved in one lump, by the intermede of dry clay, is a singular property in one species of coal, which is, to suffer a most intense red heat, without expanding more than the friable substance of the dry clay; that is to say, without swelling in the fire, and so bursting asunder the artificial cohesion of the lump which had been introduced by means of the clay.

It is only one species of coal which has this property of not swelling in the fire, and of consequence of preserving itself in a lump when united by clay; this species is well known by the name of malt-coal, or that which burns without smoak; every other species of culm is incapable of being in this way rendered useful.

HENCE it will appear, that if the practice of England, (where culm only has been hitherto admitted for transportation) had consisted in permitting the lime and brick-culm to be transported at the low duty, and in refusing this privilege to that species of culm which may be rendered fit for domestic use; and if the question now under consideration, with regard to the small coal of Scotland, had been concerning that species which has been here denominated house-culm; in that case, there would have been reason to refuse this more valuable commodity a privilege, which, it might be alledged, was only intended for a meaner species.

THIS however is not the case; on the contrary, it is certain, that it is the most valuable species of culm that has always been permitted for transportation from South Wales; and in this manner all the west coast of Wales, where no coal is found, has been supplied with the means of obtaining an admirable fuel for every purpose of life, as well as manufactures of the meaner kind. It is also

certain, that by far the greatest quantity of the Scots culm, for which the privilege of transporting at the low duty is demanded, consists of nothing but the meanest species, and of which no other advantageous use will be found, except the burning of lime and brick.

SINCE writing this general view with regard to the subject of coal and culm, I have been informed that application has been made, by persons concerned either in the coal business, or the welfare of the country, to the revenue officers, for allowance to carry coast-ways a commodity which they think is justly entitled to the denomination of culm, or for an extension of the privilege of the culm-law, to every species of that commodity, as well as to that particular species which has been carried coast-ways in Wales. It is said that this demand has been refused, and that it has been alledged on the part of the revenue officers, that having made application to both naturalists and chymists, they could not procure any proper distinction, whereby culm might be discriminated from coal.

IF that view of the subject which has been here given is just, the reason will be evident why no such information from that mode of application had been procured; but it must thence also appear, that it is not from a want of any natural distinction of those two substances, coal and culm, that such an appli-

cation must necessarily be fruitless, but only from a misapprehension of the nature of that distinction of the commodities, coal and culm, which is more properly commercial; or from inattention to other circumstances, that must be considered at the same time that the nature of the mineral substance is examined.

BUT altho' such a mode of examination should always necessarily fail, it is not thence to be inferred, that any difficulty should occur with regard to the forming a just and proper distinction of coal and culm; by means of common sense, a medium in which the subject may be better judged, and which it is much more probable conducted the views of the Legislature with regard to the taxes on coal and culm, than either natural history or chymistry.

THE ignorance of gentlemen bred in London, where there is not perhaps any opportunity of learning what belongs to the nature of culm, is a thing that cannot properly be attributed to them as a fault; it would, however, be a serious misfortune to the public, if those gentlemen were to be sustained as the judges, in a case where they have nothing to guide their understandings besides a blinded zeal for the revenue of a particular tax.

THE refusal of this claim for the extension of the culm-law, might perhaps be viewed in a more indifferent light by those who have

the general interest of the community at heart; as it is reasonable to hope, that more enlarged views of the subject, and consequently more equitable ideas, with regard to the permission of a useful trade, would be entertained by those gentlemen, who now refuse a demand apparently so just, that it certainly requires nothing but a proper representation of the case, to make it be complied with. But the proposal of a new law, wherein the privilege of culm shall be taken away, is of a nature infinitely more alarming.

SUCH a proposition as this would require to have the attention of the Legislature turned toward a subject which is much more important in its nature, and might be more fatal in its consequences, than may be at first sight apprehended. For, gentlemen who have not thought upon the subject, might be easily persuaded in having the thing represented only in one light, that such a proposed law is only in order to establish a more equal manner of levying the coal-tax, or that, at the most, it is only imposing a very small additional tax on the coal-trade; whereas, in fact, the coal-trade is very little concerned in this question, while the interest of the community may be herein deeply affected.

It is therefore hoped, that it will not be thought improper to examine particularly the opinion that is said to be entertained by certain people, who have been applied to up-

on this occasion; and to shew that such an opinion must be founded upon erroneous ideas, not only respecting the subject of coal and culm, but also concerning both the interest of that particular revenue, and the good of the community in general.

IN the first place, it may be proper to observe, that those gentlemen, in their opinion upon the subject of coal and culm, would seem to have been misguided by a conceived notion that culm is only small coal, and that small coal is equally valuable as great coal: for it has been alledged, as an objection to the extension of the culm-law, that exposure to the air alone will crumble down the great coal, and make small coal of it, without occasioning any expence to the proprietors of that commodity.

NOTHING could tend so much to shew how ignorant of the subject those gentlemen are, to whom such an idea could have occurred, for the breaking down of great coal into small, is never a matter of choice, at least, if that is ever the case; it is not then attended with any expence; the breaking of fat or fusible coal, is a great conveniency, it being thus worked both in the mine, and brought to market at a cheaper rate than lean coal, the value of which, is, in general, entirely lost, in being broken at least to a certain degree.

It has been further alledged against the claim of the gentlemen who have petitioned for the allowance of the culm-law, that small coal, by the admixture of either salt-water, or sand and earth, may be made to lose its caking quality, and so become undistinguishable from culm, the privilege of which it might then easily claim.

It has already been noticed, that gentlemen may not be blameable for their ignorance of a subject about which they never have had an opportunity of being properly informed; but gentlemen to whom a subject has been referred for an opinion, should be cautious of stating erroneous facts, and should be careful to reason justly from the facts which they themselves admit.

THESE gentlemen seem to be aware, that notwithstanding of the apparent similitude of coal and culm, when examined by sight, or subjected to a chymical analysis, yet there may be an evident and just distinction of those two different commodities when applied to use, which is burning; and that with respect to the proper purpose of the commodity, coal and culm may have distinct characters; it has therefore been made a subject of their apprehensions, that proper coal may be so adulterated, as to lose its own character, and assume in burning that of culm.

THE unreasonableness of such an objec-

tion will appear, by giving the smallest attention to the nature of the case; it is alledged, that the admixture of salt-water, sand or earth, to the commodity, will change the character of coal undistinguishably, and make it lose its caking quality, by which it is discriminated from culm; now, if there is no natural distinction or essential difference betwixt coal and culm; that is to say, small coal that cakes in burning, and that which does not; why suppose any pains to be taken by the proprietors of coal, in order to change its caking quality? but if, on the other hand, there really subsists such a distinction of coal and culm, and such an essential difference in the quality of these commodities, what reason is there to suppose, that a proprietor of coal will ever willingly destroy that valuable commodity, and convert it into mere coal rubbish? when, in many coal countries, perhaps in every one, there are immense quantities of this rubbish or culm to be had almost for nothing.

It might indeed be alledged, that coal, disguised with salt-water, may be afterwards restored to its former value, by having the salt washed away with fresh water; but such suppositions cannot deserve a serious answer; the fact is, that coal could not be thus disguised and made to pass for culm; and if coal is so adulterated by the mixture of sand or earth, either this deceit must be a palpable thing, therefore easily to be checked, or the

value of the coal thus adulterated could never be restored, which is the best security possible against the danger of such a fraudulent practice.

FROM the supposed difficulty of distinguishing coal and culm, and perhaps the known negligence and corruption of revenue officers, an apprehension has arisen with regard to the extension of the culm-law, that thereby a door might be opened to fraud in the levying of the coal-tax; it is therefore the opinion of those gentlemen, that, instead of allowing any extension of the culm-law, application should be made to parliament, and a new law made, abolishing every privilege of culm, and subjecting every species of this mineral substance, to the heavy duty imposed on coal.

IT is now proposed to examine this opinion, in which there are two distinct ideas; First, Apprehensions with regard to the danger of allowing the extension of the culm-law; and Secondly, A proposal for a new law: these will properly require separate considerations.

IT is apprehended, that upon the extension of the culm-law, a danger to the revenue might ensue; first, from the ignorance of the officers who are well disposed; and, secondly, from the roguery of those who may not be ignorant; and thence it is alledged, that the revenue might be greatly diminish-

ed, by the passing of what is properly coal under the denomination of culm.

As every objection that has been made to the extension of the culm-law, and every apprehension that can with justice be imagined in relation to it, is founded upon a supposed difficulty in distinguishing culm and coal of equal smallness; so, in order to remove those objections and apprehensions, nothing further can be required, than to have a practicable method of making a discovery, for certain, of coal, when such should be presented as culm, in order to claim the privilege of that commodity.

It has already been observed, that every body, even the meanest person in the kingdom, whose proper interest is concerned with the use of those commodities, makes the most perfect distinction of coal and culm; but a custom-house officer is to be considered as a person, either totally ignorant of the use of the commodity, or as improper to be a judge of the subject; and a rule is required by which he shall be informed upon those occasions with regard to the question under consideration; then the method in which he may proceed for this end, is as follows:

LET the commodity presented as culm, but suspected as coal, be sent to a cinder-oven where small coal is charred, or what is called coaks made from that species of coal; then

if the artist here applied to shall be able to make coaks from the commodity, it is not culm, but coal; if otherwise, then the commodity is entitled to the benefit of the culm-law, as not being fit for burning, in its present state, according to the usual manner, or for the ordinary purposes of coal.

It will be no objection to this proposed mode of distinguishing coal and culm, that there may not be cinder ovens at hand, or in the country, where the trial is to be made, nor consequently artists proper to determine the question which then occurs; for, the small coal, here considered, is a substance which, upon the same principle with that on which is founded the art of baking small coal into coaks, may be essayed in small, if not with all the accuracy required in the essaying of gold and silver, with all the accuracy at least that may be necessary for the purpose here in view; and it is hoped, that the facility and simplicity of the operation, now to be proposed, will not be imputed to it as a fault or any imperfection.

LET a crucible, an iron ladle, or even a fire-shovel, be put in the fire, so as to become red hot; then the coal-dust or culm, presented for trial, is to be thrown into the ignited vessel, and suffered there to remain burning in the fire, until all appearance of flame ceases; the vessel is then to be lifted out, and the contents, when cold, examined. If what was

thrown into the vessel, in form of dust or small coal, be now consolidated, and has become a perfectly cemented mass of cinder, then the substance of which it was made may be safely judged to have been coal; but if, on the contrary, the mass is still incoherent, or but slightly cemented, then it will be found, that the substance employed in this case must be considered as culm, seeing that it will not answer the usual purposes of coal.

I have thus endeavoured to give a rational system concerning coal and culm, with an easy method of assaying these commodities, in order to have them properly distinguished; not only so as to be able to discriminate culm from coal, but even to discern certain gradations in the variable nature of those mineral substances, or certain approaches that those two different commodities may occasionally make towards each other in quality, without, at the same time, being confounded: in like manner, as the size by which coal and culm is also perfectly distinguished is an indefinite thing with regard to a mass of culm, containing an infinite number of different sizes. It is now to be observed, that if nothing further could be done towards establishing that distinction, which it has been asserted does both naturally and politically subsist betwixt the two commodities in question, gentlemen who have been little accustomed to such abstract reasoning, deduced from experiments where the nature of things

are to be changed by fire, might still entertain perhaps some doubt in their minds, or might not perceive the force of those arguments, however well founded might be the train of reasoning, and however fairly drawn the conclusion.

BUT although, for the sake of illustration and conviction, the aid of art and science has been employed in a subject of law and commerce, the present question, what is coal, and what is culm? must necessarily, or in the last resort, be referred for decision to the common sense of mankind, which indeed has made the law concerning those commodities, and that perhaps with all the wisdom and equity that may be required; therefore a mode of trial is now to be proposed, which, at one view, will both justify the wisdom of the Legislature concerning the culm-law, and demonstrate the essential difference betwixt coal and culm, however involved with difficulties the subject has appeared, by neglecting this simple mode of judging things, and having recourse to the aid of the more abstruse arts. It will be also a recommendation of this mode of trial, that it is equally adapted to every capacity, and may be made as well by a jury of old women, as by the twelve judges of England.

LET an empty grate be taken, one of those in which coal-fires are commonly made; let a quantity of sticks, such as are used to kin-

dle those fires, be put into the grate, and, for the full satisfaction of those concerned in the public revenue, let the quantity of this kindling be unlimited, that is to say, let the grate be filled with it if thought necessary; then having kindled the wood, let the fire be supplied with the commodity claiming the privilege of culm; and if with this, as fewel, a fire can be made in the opinion of the first beggar taken from the street, who in this case is a better judge than the first peer of the realm, then the commodity is certainly to be esteemed coal; but if, on the other hand, a fire affording light and heat shall not thus be made, by which a person in the room may be warmed, or by which the culinary purposes of life may be served; would it not be an insult to the common sense of mankind to maintain that such a commodity is coal? and if it is not coal, it must be either culm, or some other commodity, as yet not taxed by the laws of the country.

THE most important part of the undertaking now remains, which is to examine the proposal of a new law, respecting culm; and to shew, that neither according to the rules of equity, policy, or patriotism, can the coal-tax be extended to the commodity culm.

ACCORDING to the rule of equity, commodities ought to be taxed *ceteris paribus*, in proportion to their values; coal and culm are commodities that are on all hands acknow-

ledged as being of the same kind, they differ however widely in their intrinsic values; it is impossible to say what this difference is in general; in almost all the coal countries of the kingdom, the difference in the price of coal and culm is extreme, much more than that of the respective duties of those commodities; in very many places it is infinite, seeing that culm there gives no price at all; in one small district of Wales this difference may be less, and the reason is also evident; the culm here is of that species which it has been observed is valuable in comparison with the greater part of the culm in the kingdom, which is another species of an inferior quality; but it is to be noted at the same time, that this cause alone could not possibly produce the observed effect, without the co-operation of another cause, perhaps still more powerful, which is the allowance of carrying coast-ways this commodity, according to the terms of the law, a privilege denied to all the rest of the culm in the kingdom.

AND here it may be worth while to observe, that if the revenue officers should think fit to put all the kingdom upon an equal footing with regard to the culm trade, so far equity would appear to direct their intentions; but whether this is to be done by allowing a general law, seemingly devised in wisdom for the public good, to take place equally in the different parts of the same kingdom, or by abrogating that salutary law, while it is not

even alledged that there has been any abuse made of this law in that part of the country where it has been put in practice, is the subject of the present inquiry. In the mean time, so far as there is a difference in the value of coal and culm, it is evidently according to the rule of equity that the law should not be repealed; the rule of state-policy in relation to this question comes now to be considered.

If a minister, in framing laws of taxation, should consult nothing but the ease of the officers who were to be immediately employed in levying the tax, then perhaps the abolishing the distinction of coal and culm in commerce might be consistent with that view; but if he is supposed to be actuated by no other motive, besides the laudable desire of increasing the public revenue, then every thinking person will allow the indiscriminate taxation of every species of a commodity, however different may be the value of those several species, is not the proper way to increase the public funds, for this, in other words, is only taxing a commodity more than it is able to bear; and it is not in these enlightened times that such a principle can be adopted by a minister.

If it should be alledged that the coal tax is at present so moderate that the levelling all distinction in the species of this commodity would not be overcharging the species of low-

est value, in that case my answer would be this, that a minister who should thus attempt to increase the revenue, would be, as the proverb says, Penny wise, and pound fool; for he had much better increase the tax, upon the commodity in general, to such a rate as it might bear, than to abolish the distinction of the different species of the commodity which may bear higher and lower rates of taxation, without detriment to the revenue.

WITH regard to public good, it is impossible that a minister can consult both the interest of the revenue, and the flourishing of the country, in establishing a coal-tax which shall respect equally all the realm; for in this climate, coal is equally necessary to the rich and to the poor; it is one of the means of luxury, and it is no less an instrument of industry; but, it is now to be observed, that it makes a wide difference with regard to this double view of a minister, whether the coal-law shall be preserved in its present mode, a mode that has a proper respect to the two different species which this commodity comprehends, and which are of such different values; or whether this distinction shall be abrogated in the law and every species of the commodity subjected to the same duty.

IN order to perceive this, it must be considered that coal, as the means of luxury, ought to be taxed, but as the means of industry, it ought to be left free like water and air; but it is

only coal that may be esteemed the means of luxury, culm is properly that of industry; therefore to suppose that a minister thus informed should be willing to subject coal and culm to the same duty, would be paying as little a compliment to his heart, as to his head.

THE tax on coal, however modified, must be a thing exceptionable, and the reason has been given; but it may be either more or less exceptionable, according to the more or less improper mode in which it is contrived; and now it is to be observed, that the rule of equality, in taxing the consumption of this commodity in the kingdom, so far from alleviating the hardship to the country, would aggravate this as an evil in the state.

THE present mode is far from equal; those who are fortunately situated near the coal, consequently have this commodity at the most easy rate, are not taxed; whereas those to whom distance necessarily loads this valuable instrument of industry with a heavy charge, are overloaded with a duty in a mode of taxation, which thus appears preposterous or unjust.

BUT it is not by such partial or superficial views as these, that the laws of a country, sanctified by custom, are to be judged with regard to their expediency on the whole; and it may be worth observing, in the present case, that this inequality in the mode of tax-

ing coal, does not want its proper use, and even makes some compensation for the palpable transgression of the patriotic rule of taxation, in at all affecting this commodity, considered as one of the means of industry.

THE manufactures in which coal may be required, either immediately as one of the necessary articles in those operations of industry; or more remotely, as one of the necessities of life, in order to make those branches of business flourish; these manufactures, if coal, that necessary commodity cannot with sufficient advantage be brought to them, they can go to the coal; such has been the case with those of Birmingham, Manchester, and the coarser woolen manufactures of Yorkshire; it is more than probable, that such a fund of industry and wealth could not with equal advantage be established, for example, in the fine countries of Kent, in the South; or Murray, in the North; the want of coal in those countries, would be a disadvantage that perhaps nothing could compensate.

THUS we see, that coal, as the means of luxury, may be taxed in a state with some propriety; and as the means of industry, it may in some measure still be free: but this is not the case with culm; culm can neither be considered as the means of luxury, consequently be taxed with propriety, nor in the application of this commodity to manufac-

ture, can there be any advantage derived from that mode of taxation, which, with regard to coal, has now been found possessing great utility ; and the reason of this will be also evident, in giving the smallest attention to the nature of the thing.

It is not necessary for the wealth, the power, or happiness of a state, that every country in the kingdom should make use of coal, or even should be, that which is commonly reckoned, a manufacturing country ; but every country of the kingdom should be cultivated in some degree, and in some manner ; for every uninhabited unindustrious country in a kingdom, is an interruption to that most valuable intercourse which constitutes internal commerce ; now lime and brick, as well as wood and iron, are the principal instruments of agriculture, or any species of rural industry ; and lime or brick, for the manufacture of which, culm is so peculiarly adapted, cannot, like other manufactures, go to the fewel ; in this case, the fewel must necessarily be brought to the manufacture, consequently to tax culm as coal, would be to endeavour, so far as this mode of taxation is concerned, to leave uncultivated every country that is not naturally provided with the fewel proper for those purposes.

Dr. Smith has demonstrated from principles which I believe are indisputable ; that internal traffic is a more advantageous source of

national wealth, than foreign trade. But can there possibly be a fund of internal traffic more valuable or certain than the taking away ill-judged restraints upon the trade of a commodity, which in one part of the kingdom is of no value at all, and is necessarily required in another, for the improvement of the country.

IN what light therefore must appear a proposal for quadrupling the duty upon a commodity which has been perhaps too inconsiderately taxed at all, and giving thereby the most effectual check to a traffic which, of all others, ought to be the most industriously encouraged.

BUT there is no reason to apprehend that a law which is inconsistent with the plainest rules of equity, policy, and true patriotism, shall be devised by our minister, approved of by our king, or suffered to pass through a British Parliament; at the same time it is the duty of a subject, who enjoys the blessings of so happy a government, unasked, to inform his king and country of matters which may happen to fall within the compass of his knowledge; when, from the misapprehension of individuals not conversant in the subject, such information may seem to be required.

THERE is on this subject, only one observation more that occurs at present, which tho' extremely general, is peculiarly applicable in

this place, where from certain apprehensions that enter the heads of the King's officers, with regard to some imagined inconveniencies, the execution of the most distinct, and apparently the most equitable law that can be framed, has been hitherto prevented; and that this is no groundless accusation, will appear by considering, that however well-founded those apprehensions shall be supposed, yet they never have been justified by experience, which is above all reasoning in such cases, and which is a thing that may be here so easily obtained.

THE observation is this, that if no devised law was to be allowed to pass, or no passed law allowed to be put in execution, until it should appear clearly that no abuse of it could take place, this cautious maxim might in effect prove by far a greater evil in a state, than the suffering some palpable abuses of the laws to pass uncorrected.

It is not here contended that no inconvenience possible can attend the execution of the culm-law, but it is demonstrable from principles universally admitted, that the law is strictly conform to equity, and it belongs to the King's officers to surmount those inconveniencies to which the most salutary law may necessarily be liable, or to correct whatever abuses in the execution of it may occur; but it is departing from their proper business to devise new laws with regard to subjects in which they may be even grossly ignorant.

To conclude, If there was no such distinction in the value and use of commodities as that of coal and culm, and if an exemption from duty was demanded in the case of coal carried coast-ways for the special purpose of burning lime or brick, that is to say, for manure to the land, and housing for the purposes of industry; then would it not be consistent with the soundest rules of policy to allow this free traffic? seeing that in all probability the loss of a certain quantity of coal-revenue thus incurred, would be amply compensated by the flourishing state of the country, which a reasonable indulgence like this would certainly promote.

BUT when there is actually found such a commodity as is naturally adapted to the purpose of burning lime and brick, and for no other, so far as the proper use of coal cannot be made of it; in that case, to thwart this admirable order in the commercial interest of a country, and pervert that natural course of things in the domestic œconomy of a state, by forcing valuable coal to be burned for purposes which might be served by the consumption of a commodity that otherwise is waste; in other words, to lay a heavy tax upon a commodity without regard to what it may be able to bear, whereby a thing that might be extremely useful is rendered useless in a state, without at the same time having any reasonable prospect of hereby increasing the public revenue, is more like to the dream of a disturbed mind, than a serious proposal of the present age.

THE END.

